Version 2.0
Effective as of 06/15
Translation of original instruction

User Manual

IT Infrastructure

IWL3000 series

adstec
Industrial IT

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1 Notes

1.1 General remark

This instruction manual is intended to ensure safe and efficient handling and operation of IT Infrastructure products.

The instruction manuals must be read carefully by personnel before commencing any type of work.

All of the safety notices and handling instructions given in the manual must be obeyed in order to ensure that work is carried out safely.

Operation of the system is subject to the laws and regulations which are applicable in the respective country at national, federal, European and international level.

The generally accepted rules of technology, usually in the form of standards, directives, regulations, conditions and technical rules specified by national and federal organisations as well as trade associations and committees for the field of specialisation concerned, shall apply.

Figures used in this instruction manual are provided for basic understanding and may differ from the actual design.

The operator/operating company is independently responsible for compliance with and observance of any subsequently introduced technical innovations or new legal requirements, as well as for all usual obligations of the operator/operating company.

The original version of this instruction manual was written in German. All non-German versions of this instruction manual are translations of the German instruction manual.

1.2 Limitation of liability

ads-tec GmbH shall not be liable for personal injury, property damage or damage caused to the product as well as consequential damage that is/was the result of non-compliance with this instruction manual, improper use of the product, repairs and other actions on the product by unqualified specialists and specialists not certified by ads-tec GmbH, or that is/was the result of using unapproved replacement parts.

1.3 Relevant device documentation

The following documents are decisive to unit setup and operation:

Instruction manual:

Contains information for installation, commissioning and operation of the device along with technical data of the device hardware.

Website

You can download drivers, software, user manuals, leaflets and flyers from the **Download** section of our website www.ads-tec.de.

2 Safety instructions

2.1 Structure of safety instructions

The signal word classifies the hazard.
Reference to the type/consequences and source of the hazard is made underneath the signal word.
Instructions for preventing the hazard are identified by an arrow (➡).

⚠ SIGNAL WORD

Type/consequences of hazard!
- Source of hazard
➡ Measures to prevent hazard

2.2 Graduation of risk level

The signal word classifies the hazard.
Instructions for preventing the hazard are identified by an arrow (➡).

2.3 Explanation of used symbols

⚠ DANGER

Indicates an imminent danger. If not avoided, death or severe injury will result.

⚠ WARNING

Indicates a possible danger. If not avoided, death or severe injury could result.

⚠ CAUTION

Indicates a possible danger. If not avoided, light or minor injuries could result.

ATTENTION

Indicates a possibly damaging situation. If not avoided, the system or something in its surroundings could be damaged.

Recommendation for use:

The symbol "Recommendation for use" indicates terms and/or conditions that strictly need to be observed to ensure optimised and/or zero-defect operation. Tips and suggestions for the efficient use of the device and software optimisation are also provided.

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2.4 Symbols

Symbol	Meaning
	Designation of batteries in accordance with § 13 of the German Battery Act (BattG). Batteries may not be disposed of with household waste, but must rather be disposed of separately. Used batteries must be returned to the point of sale or a disposal system.
	Labelling of electrical and electronic devices in accordance with § 7 of the German Electrical and Electronic Equipment Act (ElektroG). Electrical and electronic devices must not be disposed of with household waste, but must rather be taken to a collection point for waste electrical equipment. Such a collection point is generally operated by public waste management authorities, i.e., by municipalities.
	Symbol for the protective earth connection

2.5 Data, figures and modifications

All data, text and figures were prepared to the best of our knowledge. They do not represent any assurance for the properties themselves. Despite taking utmost care, no liability can be assumed for accuracy, completeness and actuality of the information. Subject to changes.

2.6 Trademarks

It is noted that any software and/or hardware trademarks and any company brand names mentioned in this documentation are all subject to the general trademark protection rights.
StoraXe® and Big-LinX® are registered trademarks of ads-tec.
All other third-party trademarks used are hereby acknowledged.
In the case of infringement of trademark rights, ads-tec reserves the right to exercise all rights.

2.7 Copyright

This instruction manual is protected by copyright. For the authorised user, simple usage rights are granted within the scope of the intent of the contract. Any modified use or exploitation of the provided content, particularly duplication, modification or publishing in whatever form is permitted only with the prior consent of ads-tec.
In the case of copyright infringement, ads-tec reserves the right to exercise all rights.

2.8 Standards

This device is compliant with the provisions and safety objectives of the following EU directives:

Standards

- This device is compliant with the CE mark test requirements as defined in the European test standards EN 55022 and EN 61000-6-2
- This device is compliant with the DIN EN 60950 (VDE0805, IEC950) testing specifications on “Information technology equipment – Safety"
- This device is compliant with the DIN EN 60068-2-6 testing specifications (sinusoidal vibration)
- This unit is compliant to the DIN EN 60068-2-27 (shock and bump) testing specification
- This unit is compliant to DIN EN 300 328 V1.8.1 (2,4 GHz) and DIN EN 301 893 V1.7.1 (5GHz)

Recommendation for use:

A corresponding declaration of conformity is available for competent authorities at the manufacturer and can be viewed upon request.

For full compliance with the EMC legislation, all components and cables used for device connection must also be compliant with these requirements. It is therefore necessary to employ BUS and LAN cables with shielded connectors and these must be installed as per the instructions contained in the instruction manual.

3 Operating and safety instructions

The device operates under electrical voltage and contains highly sensitive components. Intervention by the user is required only for connecting the power supply lines. Should any further modifications be required, it is necessary to consult either with the manufacturer directly or with service personnel authorised by the manufacturer. The device must be de-energised during work. Appropriate measures must be taken to prevent electrostatic discharges on components. If the device is opened up by an unauthorised person, the user may be subject to hazards and the warranty is invalidated.

General information

- Assembly, commissioning and operation may only be performed by qualified and trained personnel
- The safety notices and the instruction manual are to be observed by all persons who work with the device
- At the installation site the valid guidelines and regulations for accident prevention must be observed
- The instruction manual contains the most important information for safely operating the device
- Appropriate storage, proper transport, installation and commissioning, as well as careful operation are prerequisites for ensuring safe and proper operation of the device

Recommendation for use:

Only the original ads-tec firmware / software is allowed for any of the settings and features described in this instruction manual. Loading of any firmware / software that has not been released by ads-tec invalidates the warranty.

3.1 Safety instructions

ATTENTION

To prevent damage to the device, all cable lines (power supply, interface cables) must be only be connected while the device is switched off.

ATTENTION

All installation work performed on the device must be performed only under safe, secure and de-energised conditions.

⚠ CAUTION

Warning - hot surface

→Protective gloves must be worn when handling devices with ambient temperatures of 50 °C and higher.

→Disregarding this warning can result in burn injuries or damage to property.

Recommendation for use:

Always adhere to the safety measures applicable when handling components at risk of being damaged by electrostatic discharges.

(DIN EN 61340-5-1 / DIN EN 61340-5-2)

3.2 Operating location

This device is designed for industrial use. Make certain that the specified environmental conditions are maintained at all times. Use in non-specified environments, i.e., on board ships, in explosive atmospheres or at extreme elevations, is prohibited.

ATTENTION

Risk of short circuit!

To prevent the formation of water condensate, the device may be turned on only after it has reached the specified ambient temperature. This also applies if the device is exposed to extreme temperature fluctuations.

To avoid overheating in operation:

→The device must not be exposed to direct radiation by sunlight or any other light or heat source.

3.3 Damage due to improper use

Should the control system have evident signs of damages caused, e.g., by improper operation or storage conditions or due to improper use or handling, the device must be shut down immediately. Ensure that it is secured against being started up accidentally.

3.4 Warranty / repairs

During the device warranty period, any repairs must only be performed by the manufacturer or by service personnel that has been authorised by the manufacturer.

3.5 General information on the 5GHz version (802.11 A / 802.11 H) ETSI

The device is certified for the use of channels of the 5 GHz band according to ETSI EN 301 893 V1.7.1. In this case, the user is to observe the following:

Access Point as well as Access Client devices use DFS and TPC by default on all 5 GHz channels, both for indoor as well as outdoor configurations. The devices can therefore always be operated with 23 dBm or 30 dBm maximum transmission power.

Information:

Access Points must not shut down the DFS outdoors. An Access Client may shut down the DFS. This setting is switched off by default.

802.11a channels cannot be set permanently.

Information:

The lower four channels (non-DFS) can be set permanently if the DFS is switched off. Switching off the DFS also results in the 60s Scan and Radar Detection functions being switched off, however.

Upon activation of the Access Point, the Access Point performs a one-time radar detection scan and then waits for a period of time on an arbitrarily selected channel for a radar pulse before operation on this channel is started. The waiting time depends on the channel and the regulatory domain.

If a radar pulse is detected by an Access Client during operation, this is reported to the Access Point according to 8011.h. As a result of this or on account of a detection made on its own, the Access Point changes the channel with a channel switch according to 802.11h.

The maximum permissible transmission power varies by channel. It is therefore necessary that the user correctly set the antenna gain if the standard antenna is replaced!

3.6 WLAN information

Caution:

This information must be observed when operating the devices:
•The device does not offer a "secure" transmission medium
•The devices do not have a deterministic system behaviour
•No MIN/MAX roaming time can be guaranteed
The setting of the applicable regulatory authority and the antenna gain is the responsibility of the operating company.

3.7 Intended use

The Industrial Wireless LAN was specifically designed for the IT-Infrastructure of an industrial environment.

The following applications are realized by the Industrial Wireless LAN:

Remote maintenance, Seamless Roaming, firewall machines, Gigabit Router.

Application-specific applications are buildable on various software development kits (SDK).

The unit must only be installed and operated within the allowed specifications.

The use of an unspecified environment is prohibited.

3.8 Improper use

Operation other than or beyond that described for the device shall be deemed improper use.

The device is not allowed to be used to control vehicles or for applications for which further approvals beyond the manufacturer's declaration are necessary, e.g. applications with explosion hazard, medical technology, shipping industry.

The device must not be put into operation in the case of transport damage or nonconformity with the specifications and, if necessary, must be taken out of operation in the case of changing conditions.

In the case of improper use, ads-tec shall not accept responsibility or liability for injury or damage that is directly or indirectly attributable to the handling of the device.

Should the device have evident signs of damages caused, e.g., by improper operation or storage conditions or due to improper use or handling, it must be shut down immediately. Ensure that it is secured against being started up accidentally.

3.9 Treatment and disposal of lithium batteries

This device contains a lithium battery for supplying the system clock with power as long as the supply voltage is not connected. The battery has a life cycle of 3-5 years depending on which load is applied.

ATTENTION

Hazard due to thermal loads

The more the battery is exposed to higher temperatures, the faster it ages.

➡ Avoid thermal loads.

⚠ WARNING

Hazard due to explosion

Danger of explosion if using incorrect battery types.

➡ Use the battery type recommended by the manufacturer.

Lithium batteries should not be exposed to fire, soldered, recharged, opened, short-circuited, reversed or heated above 100 °C and they should be disposed of properly as well as protected against sunlight, moisture and condensation.

The battery type to be used is:

Lithium battery 1/2AA 3V (e.g. ads-tec part number: DZ-SONS-04100-0)

The used lithium battery should be disposed of in accordance with local legal regulations.

3.10 Safety instructions

ATTENTION

Damage due to electrostatically sensitive components

Damage to the device can be caused by electrostatically sensitive components.

➡ All installation and service work performed on the device must be performed only under safe, secure and de-energised conditions.

Recommendation for use:

Always adhere to the safety measures applicable when handling components at risk of being damaged by electrostatic discharges.
The provisions of DIN EN 61340-5-1 / DIN EN 61340-5-2 apply

4 Introduction

Reliable, robust and secure on a wireless LAN: based on the latest technologies, the Industrial Wireless LAN Access Point (IWL) is the network interface for applications in the areas of order picking, mobile computing and data communication. The device supports all standards such as 802.11 a/b/g/n at a transmission frequency of 2.4 and 5 GHz. Robust technology is a matter of course in industrial environments. Regardless of whether you wish to use the device in a refrigerated warehouse or under intensified heat radiation, the expanded temperature range makes it possible. With the MIL certification, the device is also certified with one of the most demanding vibration and shock resistance tests and thereby guarantees a particularly high level of sturdiness.

Information:

It is possible that the hyperlinks included in this documentation which lead to external websites may no longer function due to updates or they may be accessible under a different hyperlink. ads-tec GmbH (hereafter referred to as "ads-tec") accepts no guarantee or liability regarding the function of hyperlinks to external websites. Furthermore, ads-tec accepts no responsibility or liability of any kind with respect to the installation, application and freedom from errors of any piece of open-source software.

Information:

For the efficient online configuration of your ads-tec devices, it is possible to download the current version of the free tool "IDA light" on the company's homepage http://www.ads-tec.de. With this tool you can, for example, define individual parameters or whole groups of parameters on a master device and transfer them to a limited selection or to all ads-tec devices of same design and version without having to make these time-consuming configurations on each individual device. You can also assign sequential IP addresses for your ads-tec devices in just a few steps.

With IDA light you can comfortably provide own groups of parameters according to your specific requirements and modify them at any time.

Information:

Unless Access Client is referred to explicitly in the documentation, both IWL Access Point and IWL Access Client are always meant.
The used designations of Access Point and Access Client always refer to IWL (Industrial Wireless LAN) in the following.

3.1 Equipment versions

The device is available in two equipment versions.

Equipment version	IWL3210	IWL3220
LAN 1	RJ45	RJ45
LAN 2	RJ45	RJ45
WLAN modules	1	2

RJ45 is an Ethernet standard frequently implemented in telecommunication applications. The transmission method is equivalent to 10/100/1000 Base-T full and half duplex

4.1 Scope of delivery

The contents of the package must be checked for completeness:

Scope of delivery IWL3000 series

- 1 x IWL Access Point and Client
- 1 x 3-pin connector
- 2 x 4-pin connector
- 1 x top-hat rail holder
- 1 x mounting set with two of each of the following: pan head screw + washer + serrated lock washer
- 4 x rubber feet
- 1 x Ethernet cable, 1m red
- 1 x Quick Start-Up Guide / Quick Assembly Guide
- 1 x GNU General Public License

4.2 Environmental conditions

The device can be put into operation and used under the following conditions. Failure to observe any one of these conditions will invalidate the warranty. ads-tec cannot be held liable for any damages arising from improper use and handling.

- Ambient temperature
  - during operation: -20 to 70° C
  - during storage: -40 to 85° C
- Humidity
  - during operation: 5 to 90%, without condensate
  - during storage: 5 to 90%, without condensate
- Vibration
  - during operation: 1 G, 10 to 500 Hz (DIN EN 60068-2-6)
  - Vibration test: MIL-STD-810F 514.5 C-2, 5 to 500 Hz (01-01-2000)
- Shock resistance
  - during operation: 5 G, with a 30 ms half-cycle (DIN EN 60068-2-29)

5 Assembly

5.1 Overall device dimensions

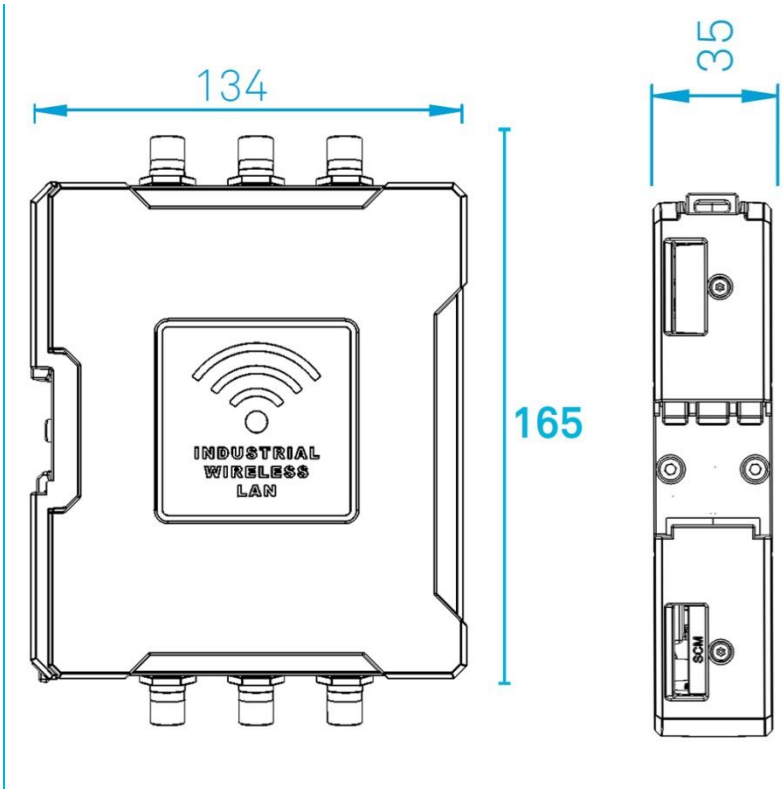


Fig. 1:

5.2 Mounting options

The device is designed for table mounting, wall mounting and for top-hat rail mounting.

5.2.1 Table mounting

Remove the protective foil on the rubber feet and attach them at the marked positions.

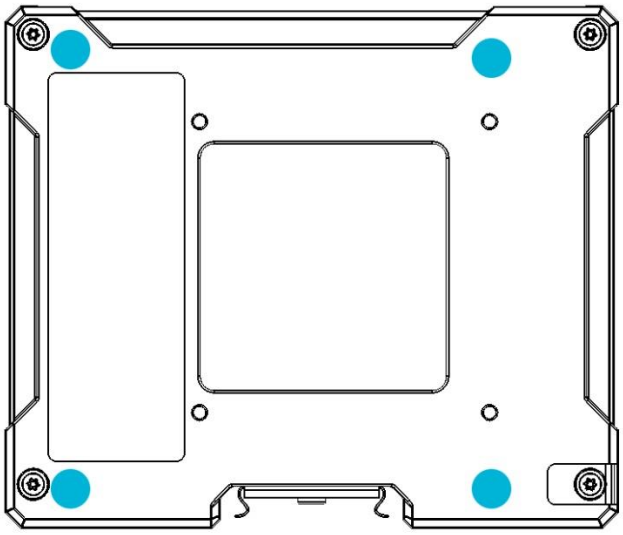


Fig. 1:

5.2.2 Wall mounting

Alternatively, the device can be mounted according to the VESA 75 standard on a suitable mounting surface.

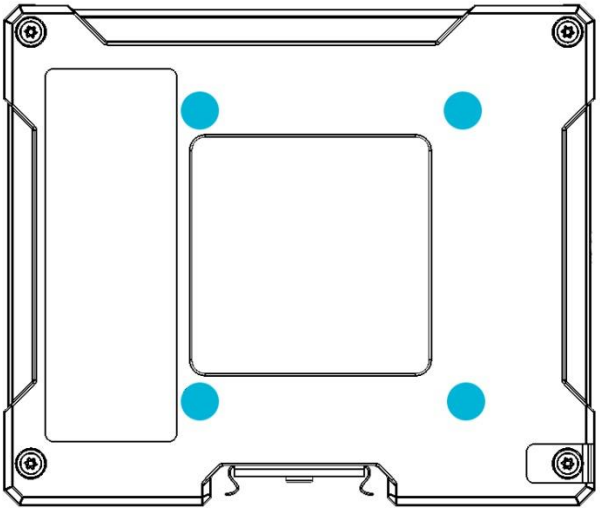


Fig. 2:

Information:

For mounting, use M4 screws of a suitable length.
The usable blind hole depth of the mounting holes is 6mm.

5.2.3 Top-hat rail mounting

The device is set at an angle from the top of the rail. (**1**) and is fixed by gently pressing on the bottom (**2**). The device must be felt to snap into the rail.

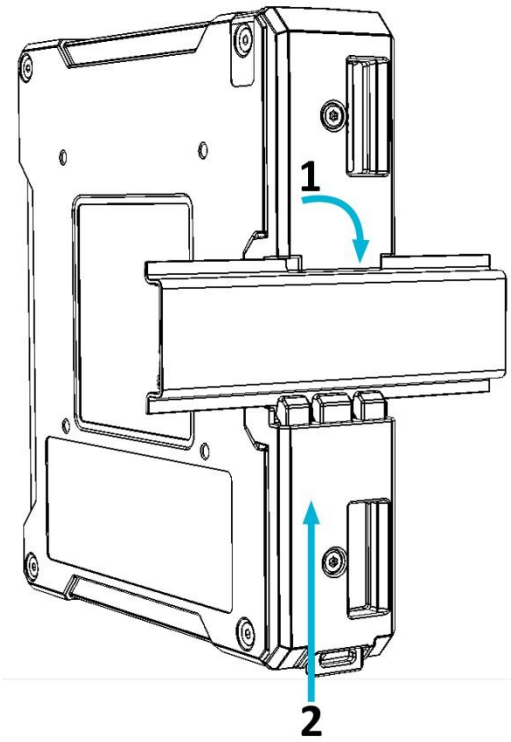


Fig. 3:

To release the device from the DIN rail, proceed in reverse order.

Information:
Make sure not to damage the mounting rail of the unit when removing it..

6 System features

6.1 General LED status display

The status of the various interfaces is displayed via the integrated LEDs. Status diagnostics of the firewall can thereby be made at the installation site.
The status indicators of the device are shown in the overview.

LED status	Representation
Off	
Green	
Flashing green	
Red	
Orange	
Flashing orange	

6.1.1 PWR / CUT & ALARM / VPN 3G

Fig. 4:

PWR (1)	Signal	Action
		This device is not supplied with voltage
		Indicates POWER ON, flashes during booting
		The device is supplied with voltage via POWER and is ready for operation
Status (1)		This device is not supplied with voltage
		Error during the boot-up process / recovery image

Abb. 5:

Link (2) / (3)	Signal	Action
		There is no Wi-Fi connection active
		Search for available WLAN networks
		Connection established
Activity (2) / (3)		Active traffic

6.2 Operational LED status indicators

6.2.1 Behaviour of the status indicators during the boot-up process

The boot-up process starts as soon as the Access Point is supplied with a power source. With the help of the PWR LED, it is possible to check whether the Access Point boots. The PWR LED should illuminate green and flash slowly.

6.2.2 Behaviour of the status indicators when resetting to default settings

Using the **Factory Default** pushbutton, it is possible to reset the firewall back to the default factory settings at any time, independent of its configuration.
To reset the Access Point to the default settings, the Factory Default pushbutton must be pressed prior to the boot-up process and held down for approx. 10 seconds during the boot-up process. The PWR LED flashes rapidly while resetting to factory settings. As soon as the PWR LED illuminates constantly, it is possible to access the web interface.

6.2.3 Behaviour of the status indicators during a firmware update

A firmware update can be performed via the web interface. The actual update process may require a few minutes.

6.3 Interface overview

Fig. 6:

The device is equipped with the following interfaces (front):

1. Power 24V DC power supply (7…36V) (3-pole plug)
2. LAN1 RJ45 connection
3. LAN2 RJ45 connection
4. X1
5. X2
6. USB 2.0 connection
7. WPS pushbutton (factory default)

The device is equipped with the following interfaces (rear/side):

Fig. 7:

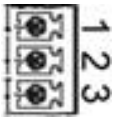
8. WLAN antenna (WLAN module 1)
9. SCM card reader (read in/out the ads-tec SIM cards)
10. WLAN antenna (WLAN module 2)

Information:
All input voltages can be connected redundantly

6.3.1 24 V DC power supply

This power supply is fed to the device via a lead-through terminal.
(The figure shows the socket inside the device)

PIN number	Signal name
1	24V DC
2	GND
3	PE

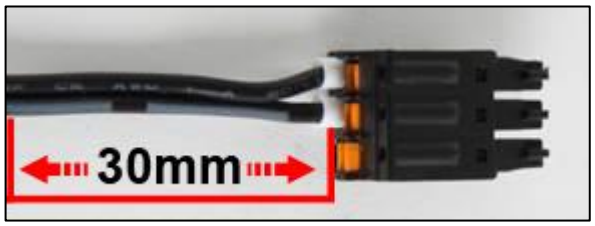


Technical data of the power adapter

- Input voltage: 7 - 36V DC

Recommendation for use:

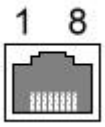
The distance between the casing and plug should be at least approx. 30mm amount.



Use a flexible cable with a wire cross section of 0.5 mm² / AWG20 and appropriate ferrules to maintain the mechanical force on the connector, as low as possible.

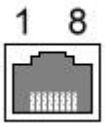
6.3.2 LAN 1 (RJ45)

PIN number	Signal name
1	TX +
2	TX -
3	RX +
4	NC
5	NC
6	RX -
7	NC
8	NC



6.3.3 LAN 2 (RJ45)

PIN number	Signal name
1	TX +
2	TX -
3	RX +
4	NC
5	NC
6	RX -
7	NC
8	NC



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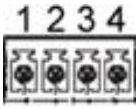
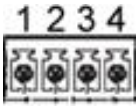
6.3.4 X1

Pin-Nummer	Signal-Name
1	24V DC
2	IN (Not Connected)
3	OUT (Wake Up)
4	GND



6.3.5 X2

Pin-Nummer	Signal-Name
1	24V DC
2	IN
3	OUT
4	GND



6.3.6 USB CONNECTIONS

The USB interfaces are used for connecting peripherals with USB connection. The interface complies with the USB 2.0 standard.

PIN number	Signal name
1	VDC
2	D -
3	D +
4	GND

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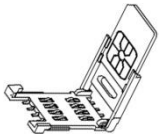
6.3.7 SIM CARD READER IN ACCORDANCE WITH ISO 7816

The SIM card reader is used to store configuration data.

PIN number	Signal name
1	VCC 5 volt
2	RESET
3	CLOCK
4	NC
5	GND
6	NC
7	I/O
8	NC



7 Placing into operation

7.1 Initial configuration

Caution:

The initial configuration of the device can only be performed via the RJ45 interface labelled with LAN.
For the initial configuration, a connection to a PC is required.

Connecting the 24V DC power source

The device can be powered with a 24V DC (3-pole plug) power source. The corresponding plug is included in the scope of delivery of the device.
Connect the device with an appropriate power source.

Connecting the RJ45 network cable

When placing into operation for the first time, a connection is required between the device and a PC via an RJ45 network cable.
Connect the device to a PC:
Device LAN connection <-> PC LAN connection

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7.2 Manual configuration of the network adapter

Information:

The procedure described in the following was prepared using the Microsoft Windows XP professional® operating system as an example. If you are using another operating system, the paths and properties described here may vary.

Open the properties map for your network adapter. The relative path is as follows:
Network connections> **LAN connection**> **Properties** (right mouse-key).
In the dialogue tab that appears, select option**: Internet protocol (TCP/IP)** and then click on **Properties**.

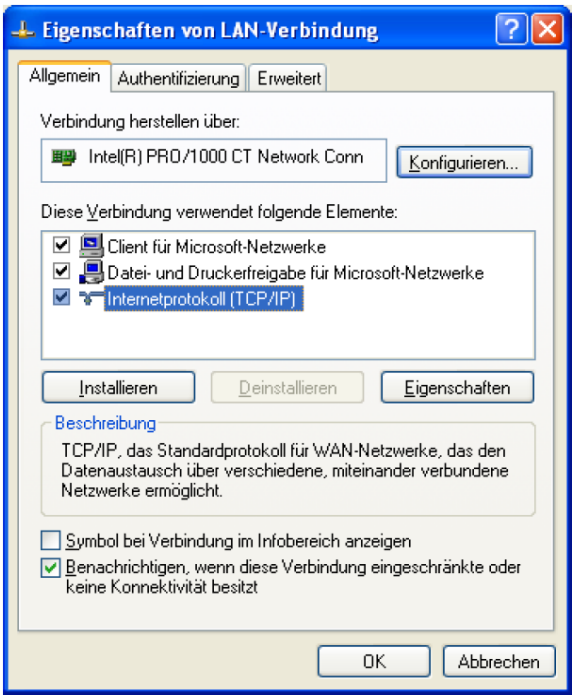

Fig. 8:

Now select: **Use the following IP address**
Access to the device is only enabled if the following parameters are entered as the fixed IP address or if the computer is located in the same subnet space:

IP ADDRESS: 192.168.0.100

Information:
The last set of digits must be a number between 1 and 253. In the example, "100" has been selected.

Once the IP address has been entered, the **subnet mask address** must be entered. Click on the **Subnet mask** field and the correct address is entered automatically.
Subnet mask: 255.255.255.0

The dialogue tab can now be closed with "**OK**".

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7.3 Settings for use with Internet Explorer 8

Caution:
If Internet Explorer 8 is used, issues with the web interface may occur. If you experience any problems, the IP address of the device must be entered in the local intranet list in order to display the web interface correctly.

Open Internet Explorer and navigate to the Security tab under the following path:
Tools→Internet options→Security
Switch to the **Local Intranet** icon and click on **Sites**.

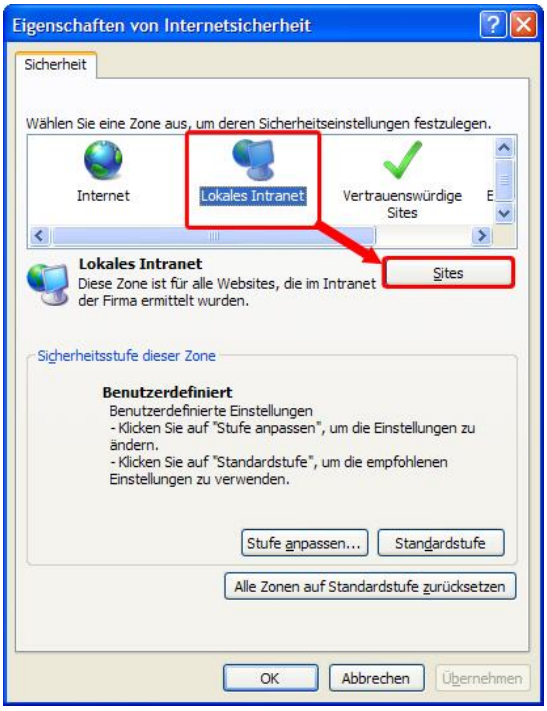


Fig. 9:

Then click on **Advanced**.

Lokales Intranet
Verwenden Sie die Einstellung, um festzulegen, welche Websites zur lokalen Intranetzone gehören.
Intranetnetzwerk automatisch ermitteln
Alle lokalen Sites (Intranet), die nicht in anderen Zonen aufgeführt sind, einbeziehen
Alle Sites, die den Proxyserver umgehen, einbeziehen
Alle Netzwerkpfade (UNCs) einbeziehen
Was sind Intraneteinstellungen?
Erweitert
OK
Abbrechen

Fig. 10:

In the **Add this website to the zone** address line, enter the device **IP address** and confirm with **Add**.
Default IP address: **http://192.168.0.254**
The **IP address** should now appear in the list under **Websites**.

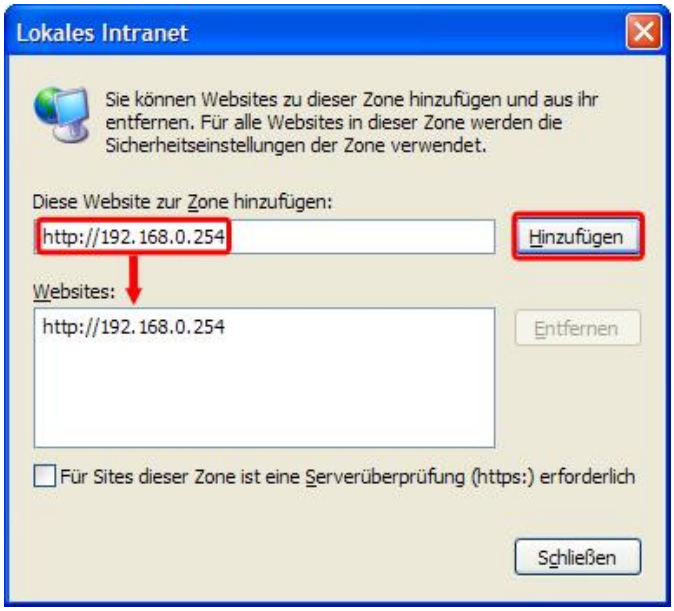

Lokales Intranet
Sie können Websites zu dieser Zone hinzufügen und aus ihr entfernen. Für alle Websites in dieser Zone werden die Sicherheitseinstellungen der Zone verwendet.
Diese Website zur Zone hinzufügen:
http://192.168.0.254
Hinzufügen
Websites:
http://192.168.0.254
Entfernen
Für Sites dieser Zone ist eine Serverüberprüfung (https:) erforderlich
Schließen

Fig. 11:

7.4 Calling up the device web interface

To access and open the device web interface, start up your web browser. In the browser's address bar, enter the following IP address and then confirm with **Enter:**
http://192.168.0.254

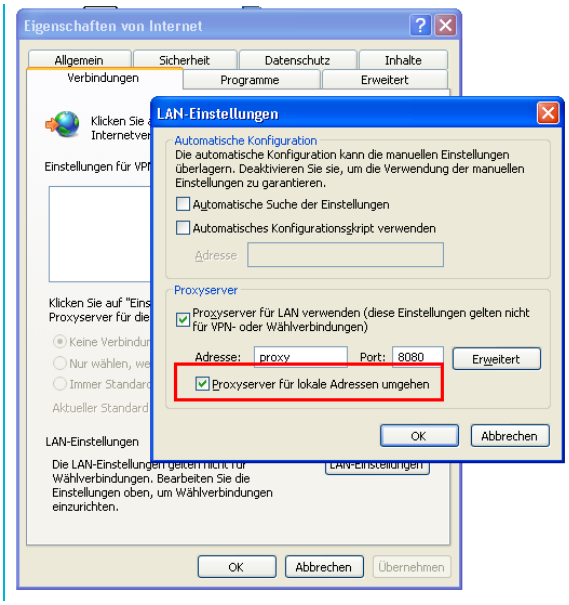
Login

Once the IP address has been entered with success, the login prompt appears. The default settings are to be entered in the login prompt.
The default configuration on delivery is:
User name : **admin**
Password : **admin**
Confirm your entries by clicking on **OK**

Fig. 12:

Information:

If the login prompt does not appear, check to ensure that the device has been connected via a RJ45 connection cable. Otherwise, connect the device to a PC (Device LAN connection <> PC LAN connection).
If there is still no connection to the firewall login screen, check the proxy and local firewall settings. Often, local subnet addresses (e.g. 192.168.x.x) are also diverted to a proxy server. In this case, it is possible to select the "Bypass proxy server for local addresses" option to enter the address in question.



The device web interface then appears.

Fig. 13:

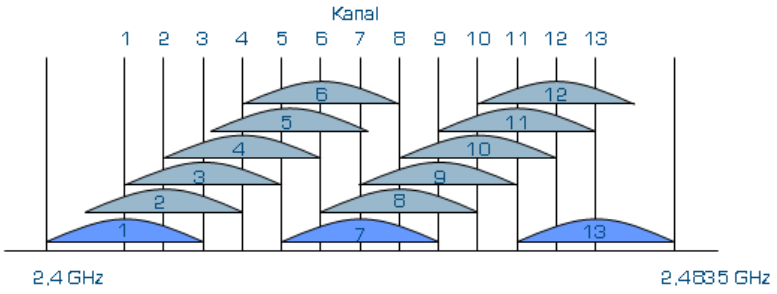
8 Certifications

8.1 Channel list ETSI 2.4 GHz

Countries	Frequency	TPC	Transmitting power Access Point		Transmitting power Access Client		In-door	Out-door	Channel can be set permanently (AP & AC)
	GHz		[mW]	[dBm]	[mW]	[dBm]			
01	2.412	X	100	20	100	20	X	X	X
02	2.417	X	100	20	100	20	X	X	X
03	2.422	X	100	20	100	20	X	X	X
04	2.427	X	100	20	100	20	X	X	X
05	2.432	X	100	20	100	20	X	X	X
06	2.437	X	100	20	100	20	X	X	X
07	2.442	X	100	20	100	20	X	X	X
08	2.447	X	100	20	100	20	X	X	X
09	2.452	X	100	20	100	20	X	X	X
10	2.457	X	100	20	100	20	X	X	X
11	2.462	X	100	20	100	20	X	X	X
12	2.467	X	100	20	100	20	X	X	X
13	2.472	X	100	20	100	20	X	X	X

Information:

TPC can optionally be activated at 2.4 GHz
13 channels, each 22 MHz wide
2 to 3 interference free channels in 802.11n operation with 40MHz channel bandwidth



Achtung:
TPC is always active at 5 GHz
19 channels, each 22 MHz wide

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8.2 Channel list ETSI 5 GHz, IEEE 802.11 a/h, n

Channel a/h	Channel n	Frequency	CAC time	DFS	TPC	Transmitting power Access Point		Transmitting power Client with DFS		Transmitting power Client **without** DFS		Indoor	Outdoor	Channel can be set permanently (only AP)
		[GHz]	[sek]			[mW]	[dBm]	[mW]	[dBm]	[mW]	[dBm]			
36	36+	5,180	0			200	23	200	23	200	23	x		x
40		5,200	0			200	23	200	23	200	23	x		x
44	44+	5,220	0			200	23	200	23	200	23	x		x
48		5,240	0			200	23	200	23	200	23	x		x
52	52+	5,260	60	x	x	200	23	200	23	200	23	x		
56		5,280	60	x	x	200	23	200	23	200	23	x		
60	60+	5,300	60	x	x	200	23	200	23	200	23	x		
64		5,320	60	x	x	200	23	200	23	200	23	x		
100	100+	5,500	60	x	x	1.000	30	1.000	30	200	23	x	x	
104		5,520	60	x	x	1.000	30	1.000	30	200	23	x	x	
108	108+	5,540	60	x	x	1.000	30	1.000	30	200	23	x	x	
112		5,560	60	x	x	1.000	30	1.000	30	200	23	x	x	
116	116+	5,580	60	x	x	1.000	30	1.000	30	200	23	x	x	
120		5,600	600	x	x	1.000	30	1.000	30	200	23	x	x	
124	124+	5,620	600	x	x	1.000	30	1.000	30	200	23	x	x	
128		5,640	600	x	x	1.000	30	1.000	30	200	23	x	x	
132	132+	5,660	60	x	x	1.000	30	1.000	30	200	23	x	x	
136		5,680	60	x	x	1.000	30	1.000	30	200	23	x	x	
140		5,700	60	x	x	1.000	30	1.000	30	200	23	x	x	

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9 Technical details

Device data	IWL3000 series
Operating system	Embedded LinuX
Configuration protocol	http, https
Power supply	24V DC +/- 20%, redundant voltage input
Interfaces	IN/OUT (electrically isolated) 1 x LAN RJ45 connection 10/100/1000MBit/s Auto crossover 1 x LAN RJ45 connection 10/100/1000MBit/s Auto crossover
External device dimensions	135 mm x 159 mm x 35 mm
Weight	approx. 1 kg
Protection class	IP20
Max. current consumption	max. 600 mA at 24V DC
Ambient temperature	during operation from 20°C to + 70° during storage from -25°C to + 85°C

Information:

Detailed information about the device can be found on our website:
http://www.ads-tec.de.

10 Service & support

ads-tec and its partner companies offer you comprehensive maintenance and support services, ensuring quick and competent support should you have any questions or concerns with regard to ads-tec products and equipment.

Because ads-tec products are also used by partner companies, these devices may have customised configurations. Should any questions arise with regard to these specific configurations and software installations, please contact them as ads-tec will not be able to answer such questions.

ads-tec does not provide support services for any device that was not purchased directly from ads-tec. In this case, maintenance and support is provided by the partner company.

10.1 ads-tec support

The ads-tec support team is available for inquiries from direct customers between 8:30am and 5:00pm, Monday to Friday.

The support team can be reached via phone, fax or e-mail:

Phone: +49 7022 2522-202

Fax: +49 7022 2522-2602

Email: support@ads-tec.de

10.2 Company address

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Fax: +49 7022 2522-400

Email: mailbox@ads-tec.de

Web: www.ads-tec.de